

scientific names, a summary of the characters, the range and season is given. There is also the more conventional index. The book makes good reading, will be valuable for reference, and will undoubtedly influence many who go into the fields and woods to add to their diet some of these plants so commonly neglected.

The Physiology of Plants*

R. C. BENEDICT

“Three qualities have been striven for in the writing of this book; the avoidance of finality of statement; frequent reminders of the bearing of plant physiology on commonplace experiences; and a presentation as readable and fluent as is consistent with scientific accuracy.”

The reviewer is glad to record his judgment that the aims so set forth have been very adequately achieved in this new plant physiology. Probably briefest of all the current texts on the subject, and least exhaustive in its treatment, this book should serve as a satisfactory introduction for an undergraduate course in plant physiology. Consistent with Professor Seifriz's special interest in cellular problems, this volume stresses those phases of the subject which are of “general physiological” significance. The style is clear and simple, the material interesting and recent. Brief bibliographies for each chapter will enable the reader who wishes to go beyond this text to find more exhaustive discussions. In itself, the Seifriz should furnish excellent supplementary reading for students in general botany and general biology classes.

In one particular of treatment, this reviewer would take definite issue with the Seifriz (as with not a few other texts), viz., in the definition and usage of the word, food. “The foods of plants are the same as the foods of animals. Inorganic substances are not foods. To be sure, if a plant containing chlorophyll is supplied with inorganic material only, it will grow normally; but the salts supplied are not food; this is made by the plant.” If the word food means anything, it means building material as well as material which supplies energy. Certainly protoplasm cannot be built without water, both colloiddally and

* Seifriz, William. *The Physiology of Plants*. Wiley 1938. \$3.50.

chemically bound, nor without the mineral constituents like magnesium, calcium, and iron which are known to enter into chemical union with essential parts of the protoplasmic organization. Seifriz himself cites such contradictory facts as the use of hydrogen sulphide, sulphur, and iron as energy sources in certain bacteria. And what of the experiments in the nutrition of rats in which the animals were raised on purified proteins, carbohydrates, and fats, plus a nutrient solution which reads like an elaborate water culture for green plants? The restricted usage for the word food seems to be one of those inherited verbalisms which persists although it will scarcely stand a critical analysis.

General Plant Physiology*

R. C. BENEDICT

"All living things feed. Matter is taken up from without and altered chemically, and from these chemical changes energy is released for growth and movement."

In a companion review to that of Seifriz's "Plant physiology" it is apposite to start with the quotation above as illustrative in part of the nutritional point of view of Barton Wright's new volume. However, the question of a proper definition of the word "food," so far as plants are concerned is not otherwise specifically advanced; the word food does not occur in the index nor, so far as noted, in the text. The title, "General plant physiology" is significant, not only for this volume but also for modern plant physiology as well. The "general physiological" point of view is evident in the four texts in plant physiology which appeared during 1938, either as entirely new books, like the Seifriz and the Barton Wright, or as the much amplified and modified new editions of Miller and Maximov.

This new English text, like another English plant physiology of the year before (Meirion Thomas, 1937), may be highly rated as a reference work for graduate students, for teachers, and for some advanced undergraduate students in botany. In three parts, "I. The general physiology of the cell," "II. Metabolism," and "III. Growth, reproduction and irritability," it is comprehensive but concentrated to a degree which sets it off

* Barton Wright, E. C. General plant physiology. Blakiston. 1938. \$4.50.